ART. VII.—*On the Mechanism of Occipito-posterior Positions of the Vertex.* By H. G. LANDIS, A.M., M.D., of Niles, Ohio. (With four wood-cuts.)

IN a paper published in this Journal for April, 1876, I have endeavoured briefly to point out a more exact correspondence between the fœtal head and the pelvic passages than has been heretofore taught; and also to exhibit the great simplicity of the pelvis and of the mechanism of labour as well, when the former is regarded as a double canal. These statements were substantially limited to occipito-anterior positions of the vertex. It now remains to be seen in what manner occipito-posterior positions conform to these views, and what further light on pelvic anatomy a study of their mechanism may furnish. At first sight there appears to be no reason why the same mechanism will not answer for both anterior and posterior positions. If the calibre of the tube, so to speak, is elliptical in outline, it might be supposed that either pole of a projectile having an elliptical transverse section might be placed to one side. But we notice at once that the foregoing is only a half truth. The passage is "rifled," and the projectile constructed to fit this adaptation. In other words, all parts of the pelvis are not equally resistant, and all parts of the head are not equally yielding. To state a conclusion in advance, for the sake of calling attention to it more prominently, we find that anterior rotation is determined by the coincidence of the most resistant parts of the pelvic canal with the most unyielding and incompressible parts of the fœtal head. These parts are respectively the ischial spines and the parietal protuberances. When these points of mutual resistance do not conflict, as in a roomy pelvis, or with a small head, posterior rotation is as likely to occur as anterior rotation; that is, the elliptical section of the head may traverse the same simple spiral course as in an occipito-anterior position, the poles of the ellipse being reversed. This latter condition is sometimes artificially produced by the compression of the forceps when applied to the sides of the child's head, in which case also posterior rotation may occur. We will suppose a head descending in the right occipito-posterior position. After becoming demi-flexed, it follows the line leading from the pectineal eminence to the ischial spines, substantially as in an occipito-anterior position. No special difficulty occurs until it nears the ischial spines, at which point the double character of the canal ceases (*vide* Fig. 12). Here the right parietal boss is just behind the left ischial spine, and the left boss is just in front of the right spine. Before posterior rotation can be completed, these two protuberances must ride over the spinous processes; and if each is of normal prominence, the more energetic the expulsive force the more difficult will this feat become. This, then, is the reason why another direction must be taken. In the mean time there is an arrest of the head. By reference to the diagram (Fig. 1), it will be seen that anterior rotation involves the transfer of the head from the right to the left canal, for this is what is meant by stating that after anterior rotation the labour is terminated, as in a second position of the vertex. The diagram (Fig. 1) is outlined from Hodge's section of a pelvic cast,[1] showing the plane of the second parallel, which being a little above the plane of the ischial spines does not give exactly the true state of affairs under consideration, but purposely exaggerates the divergence of the canals for the purpose of making the fact of the transfer clearer. The real condition is midway between this and that represented in Fig. 2, which is similarly outlined from Plate III., Fig. 21, of Hodge, which shows the plane of the ischial spines, or the third parallel. The line C D will represent the antero-posterior diameter of the head before rotation. When this is complete, the line C D will have changed, not to E G, but to E F, for it is obviously impossible for C D to turn in its entirety, especially when we remember that the true pelvic outline is more nearly as in Fig. 2. It is also obvious that the diameter E F is not the same *quoad* the head which occupied the line C D. But, as is well known, continued *flexion* of the head has brought a nearly circular plane of the child's head, viz., the cervico-bregmatic, coincident with the plane of the ischial spines, or a little above. Continued expulsive force, therefore, acting on a head in compelled arrest, results in extreme flexion, and this presenting a circular instead of an elliptical plane, there is no longer any impediment to anterior rotation; and the position becoming an anterior one, descent proceeds naturally. Neither is the extreme flexion any longer required, for E F may now be extended to E G. In fact, after passing the plane of the inferior strait, extension is required.

Fig. 1.

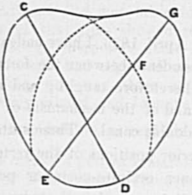
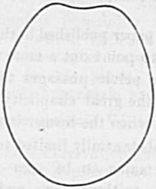


Fig. 2.



This, then, may be regarded as the first or most natural mechanism of delivery in occipito-posterior positions. If, however, the ischial spines and parietal protuberances do not offer sufficient mutual resistance, the occiput may remain posteriorly placed throughout, which may be regarded as the second method of delivery. As before stated, compression by the forceps may result in overcoming this resistance, and determine the posterior rotation. In seven cases of occipito-posterior positions delivered by the forceps, of which I have notes, three resulted in anterior rotation; in none of which was there any more compression used than was necessary to prevent the instruments from slipping. In three of the other cases the disproportion was decided, and considerable compression being used, complete posterior rotation occurred. In the remaining case the occiput remained posteriorly until an unusually large head had fairly passed through the inferior strait, and was distending the perineum to a dangerous extent; in fact, a slight tear had begun, and a large surface of the vertex was in full view. I then removed the forceps, and allowed two pains to pass unassisted. I then placed the thumb of the left hand on the posterior fontanelle, and the middle finger a little back of the anterior fontanelle, against the overlapping sutural edge; and with the next pain endeavoured to force anterior rotation. Though it was an instinctive experiment rather than an attempt well founded in reason, the result justified the trial, for before the pain ended anterior rotation had occurred, and the head had glided over the perineum. A similar case to the foregoing is narrated by Cazeaux (5th Am. edition, p. 327), in which the occurrence was spontaneous. We have, then, a third possible method to wit, anterior rotation on the perineum. A fourth mechanism, which in point of frequency, might rank second or even first, is anterior rotation at the brim, and before the head has really engaged in the initial strait. In ten cases without instrumental interference, of which I have notes, six rotated anteriorly at the brim. It must be added, however, that in several of these, internal or external manipulation, or both combined, were employed to further the natural efforts. The following facts seem to afford a partial explanation of the manner in which this rotation takes place. Fig. 3 is designed to represent diagrammatically the outline of the fœtal head, or rather of that plane section thereof which is coincident with

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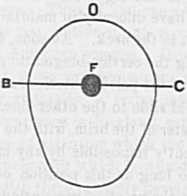
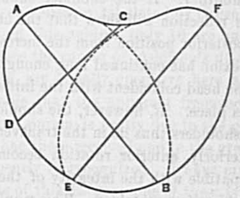
[1] System. Plate III. 20.

Fig. 3.



Outline of fœtal head. F, Foramen magnum;
O, Occipital pole.

Fig. 4.



Outline of superior strait.

the initial plane of the pelvic canal at the beginning of labour. It may be well to remark here, that the outlines of the fœtal head and of the dried fœtal skull are two very different things, which apparently are sometimes confounded. The former is regular in outline; in the latter, the more ossified portions stand out in relief. The foramen magnum, F, is seen to be appreciably nearer the occipital pole, a fact which is stated also by Schrœder (*Manual*, p. 77). Hodge appears to have thought otherwise, but the fact is so patent to any one who will look at a fœtal head in demi-flection, that it is unnecessary to speak further of it. On reflection it will appear that this proximity increases directly with the degree of flexion. Now the axis of the shoulders (B C) passes through the foramen at a right angle. Let us apply this section to the pelvis. Fig. 4 is an outline of the so-called superior strait. The dotted lines complete the elliptical outlines of the initial planes of the two canals of which the pelvis is made up (*vide* former article). If the head is so situated that the occipital pole O of the section represented in Fig. 3 is opposite B, being thus in the 1st occipito-anterior position, the long axis of the shoulders is placed over the diameter E F, and ready to be coincident with that ample diameter after the descent of the head. If, however, the section is reversed, and the pole O is placed at A, the head being thus in the right occipito-posterior position, the axis of the shoulders lies over the line D C. Thus the right shoulder impinges on the lower lumbar vertebra, which may serve the purpose of directing the shoulder on one side or other of the promontory. If the shoulder should slide to the right (towards A), a little reflection will show that the head will have difficulty in maintaining its posterior position from the increased twist in the neck. As soon, then, as flexion has continued long enough to bring the cervico-bregmatic plane of the head coincident with the initial plane of the pelvis, anterior rotation takes place. If, however, the shoulder should slide to the other side, and the shoulders thus lie in the transverse diameter of the brim, with the back posteriorly, anterior rotation becomes evidently impossible by any means compatible with the integrity of the neck, so long as this position of the shoulders is maintained. This would lead to the practical conclusion that no attempt to assist occipito-posterior positions in any case should be made until the status of the shoulders is determined, seeing that they have an important relation to the permanence of this position. Independently of this movement of the shoulders upon the promontory, the mere grasp of the uterus upon the child's body is sufficient to insure continuance of the original position until external manipulation is put in practice. Finally, since the posterior position is necessarily more difficult than the anterior, owing to the relation which the shoulders occupy to the head, two things must be borne in mind in attempting to make a favourable change. First, as the canal is substantially of elliptical outline throughout, the head cannot turn until it presents a circular plane whose diameter corresponds to the shortest diameter of the elliptical plane in which the turning is to be made. Flexion, therefore, is the first requisite in all methods. Secondly, to make the rotation feasible, and with safety to the child, the shoulders must also be rotated, so that the child's back shall present anteriorly.

ART. VIII.—*A Case of Addison's Disease.* By WILLIAM PEPPER, A.M., M.D., Prof. of Clinical Medicine in the University of Pennsylvania.

SINCE Addison, in 1855,[1] published his classical account of a peculiar form of anæmia attended with bronzing of the skin, this subject has attracted much attention, a considerable number of cases have been placed on record, and many memoirs have been written upon it. Comparatively little has been added to his admirable description of the symptoms and course of the disease, and the following brief summary of the leading and characteristic features may still be quoted: "Anæmia, general languor and debility, remarkable feebleness of the heart's action, irritability of the stomach, and a peculiar change of colour in the skin." It is certainly a rare form of disease in this country, if we may judge by the great rarity with which it appears as a cause of death in the mortality reports, and by the small number of cases which have been placed on record by American authors. Thus of 230 cases of Addison's disease tabulated by Greenhow in the last edition of his monograph on this subject, only 10 are quoted from American sources. However, since the causes of Addison's disease, as far as we are acquainted with them, are equally operative here as in other countries, it seems more probable that the apparent frequency of its occurrence in England, especially in London, is partly due to the great degree of attention which the subject has there received and to the greater readiness with which it would consequently be recognized. I have myself met with three perfectly developed cases of this disease; one of these is still living, in the second year of its course; the other two have terminated fatally. In one of the latter, an autopsy could not be obtained; but in the remaining case a careful examination was made, and, in consequence of the rarity and importance of such complete observations, I have felt justified in publishing the notes of the case at full length. In addition to these three cases, I have met with several others in which a peculiar discoloration of the skin, similar to that in Addison's disease, occurred in conjunction with some of the general symptoms of that affection; but in which, either by the recovery of the patient and the disappearance of the

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[1] On the Constitutional and Local Effects of Disease of the Supra-renal Capsules, Syd. Soc. Ed. of Addison's Works, p. 291.